

## **Biographical Sketch: Thomas W. Kirchstetter**

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### **(a) Professional Preparation**

B.S. Atmospheric Science and Mathematics, State University of New York at Albany, 1991  
M.S. Environmental Engineering, University of California at Berkeley, 1994  
Ph.D. Environmental Engineering, University of California at Berkeley, 1998  
Postdoctoral Research Associate, Lawrence Berkeley National Laboratory, 1998 – 2000

### **(b) Current Appointments**

Associate Adjunct Professor, University of California Berkeley, 2011 – present  
Department of Civil and Environmental Engineering  
Staff Scientist, Lawrence Berkeley National Laboratory, 2000 – present  
Environmental Energy Technologies Division

### **(c) Prior Appointments**

Lecturer, University of California, Berkeley, Spring 2005, 2008, 2011  
Department of Civil and Environmental Engineering  
Postdoctoral Research Associate, Lawrence Berkeley National Laboratory  
Alexander Hollaender Distinguished Postdoctoral Fellow, 1998 – 2000  
DOE Science and Engineering Research Semester & Summer Participant, 1992  
Energy Science Division, Brookhaven National Laboratory  
Undergraduate Research Assistant, 1991  
Atmospheric Sciences Division, State University of New York at Albany

### **(d) Synergistic Activities**

Editor, Journal of Atmospheric Chemistry and Physics, 2006 – present  
Outstanding Mentor Award, DOE, Office of Science Undergraduate Research Program, 2005  
Organizer, International Conference on Carbonaceous Particles in the Atmosphere, 2011, 2008, 2004, 2000  
Member, Bay Area AQMD's Community Air Risk Evaluation Task Force, 2008 – 2010  
Member, Distinguished Lecture Series Committee, Lawrence Berkeley National Laboratory, 2011

### **(e) Honors**

Outstanding Mentor Award, DOE, Office of Science Undergraduate Research Program, 2005  
Research & Development Award, Lawrence Berkeley National Laboratory, 2011, 2007, 2002  
Alexander Hollaender Distinguished Postdoctoral Fellowship, Department of Energy, 1998  
Golden West Section Graduate Scholarship, Air & Waste Management Association, 1994  
Science and Engineering Research Semester Award, Department of Energy, 1992

### **(f) Publications (h-index = 23)**

51. Hadley, OL; Kirchstetter, TW (2012) Black carbon snow albedo reduction, *Nature Climate Change*, doi: 10.1038/NCLIMATE1433.
50. Gadgil, A; Fridley, D; Zheng, N; Sosler, A; Kirchstetter, T; Phadke, A (2012) Energy in the developing world, *American Institute of Physics Conference Proceedings*, 1401, 54-74, doi: 10.1063/1.3653845.

49. Dallmann, TR; Harley, RA; Kirchstetter, TW (2011) Effects of diesel particle filter retrofits and accelerated fleet turnover on drayage truck emissions at the port of Oakland, *Environ. Sci. Technol.*, *45*, 10773–10779.
48. Sleiman, M; Ban-Weiss, G; Gilbert, HE; Francois, D; Berdahl, P; Kirchstetter, TW; Destaillats, H; Levinson, R (2011) Soiling of building envelope surfaces and its effect on solar reflectance – Part 1: Analysis of roofing product databases, *Sol. Energ. Mat. Sol. Cells*, doi:10.1016/j.solmat.2011.09.016.
47. Apte, JS; Kirchstetter, TW; Reich, AH; Deshpande, SJ; Kaushik, G; Chel, A; Marshall, JD; Nazaroff, WW (2011) Concentrations of fine, ultrafine, and black carbon particles in auto-rickshaws in New Delhi, India, *Atmos. Environ.*, *45*, 4770-4480.
46. Soto-García, LL; Andreae, MO; Andreae, TW; Artaxo, P; Maenhaut, W; Kirchstetter, T; Novakov, T; Chow, JC; Mayol-Bracero, OL (2011) Evaluation of the carbon content of aerosols from the burning of biomass in the Brazilian Amazon using thermal, optical and thermal-optical analysis methods, *Atmos. Chem. Phys.*, *11*, 4425-4444, doi:10.5194.
45. Hadley, OL; Corrigan, CE; Kirchstetter, TW; Cliff, SS; Ramanathan, V (2010) Measured black carbon deposition on the Sierra Nevada snow pack and implication for snow pack retreat, *Atmos. Chem. Phys.*, *10*, 7505-7513.
44. Strawa, AW; Kirchstetter, TW; Hallar, AG; Ban-Weiss, GA; McLaughlin, JP; Harley, RA; Lunden, MM (2009) Optical and physical properties of primary on-road vehicle particle emissions and their implications for climate change, *J. Aerosol Sci.*, *41*, 36-50.
43. Strawa, AW; Kirchstetter, TW; Puxbaum, H (2010) Special issue for the 9<sup>th</sup> international conference on carbonaceous particles in the atmosphere, *J. Aerosol Sci.*, *41*, 1-4.
42. GR McMeeking, SM Kreidenweis, S Baker, CM Carrico, JC Chow, JL Collett, WM Hao, AS Holden, TW Kirchstetter, WC Malm, H Moosmüller, AP Sullivan, CE Wold, (2009) Emissions of trace gases and aerosols during the open combustion of biomass in the laboratory, *J. Geophys. Res.*, *114*, D19210.
41. Ban-Weiss, GA; Lunden, MM; Kirchstetter, TW; Harley, RA (2009) Size-resolved particle number and volume emission factors for on-road gasoline and diesel motor vehicles, *J. Aerosol Sci.*, *41*, 5-12.
40. Ban-Weiss, G; Lunden, MM; Kirchstetter, TW; Harley, RA (2009) Measurement of black carbon and particle number emission factors from individual heavy-duty trucks, *Environ. Sci. Technol.*, *43*, 1419–1424.
39. Timko, MT; Yu, Z; Kroll, J; Jayne, JT; Worsnop, DR; Miake-Lye, RC; Onasch, TB; Liscinsky, D; Kirchstetter, TW; Destaillats, H; Holder, AL; Smith, JD; Wilson, KR. (2009) Sampling artifacts from conductive silicone tubing, *Aerosol Sci Technol.*, *43*, 855-865.
38. Shehabi, A; Ganguly, S; Gundel, LA; Horvath, A; Kirchstetter, TW; Lunden, MM; Tschudi, W; Gadgil, AJ; Nazaroff, WW. (2009) Can combining economizers with improved filtration save energy and protect equipment in data centers?, *Building Environ.*, *45*, 718-726.
37. Kean, A; Littlejohn, D; Ban-Weiss, G; Harley, R; Kirchstetter, TW; Lunden M. (2009) Trends in on-road vehicle emissions of ammonia, *Atmos. Environ.*, *43*, 1565-1570.
36. Kirchstetter, TW; Aguiar, J; Tonse, S; Novakov, T; Fairley, D. (2008) Black carbon concentrations and diesel vehicle emission factors derived from coefficient of haze measurements in California: 1967-2003. *Atmos. Environ.*, *42*, 480-491.
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34. Hadley, OL; Corrigan, CE; Kirchstetter, TW. (2008) Modified thermal-optical analysis using spectral absorption selectivity to distinguish black carbon from pyrolyzed organic carbon, *Environ. Sci. Technol.*, *42*, 8459–8464.
33. Lunden, MM, Kirchstetter, TW, Thatcher, TL, Hering, SV, and Brown, NJ. (2008) Factors affecting the indoor concentration of carbonaceous aerosols of outdoor origin. *Atmos. Environ.*, *42*, 5660-5671.
32. Ban-Weiss, GA; McLaughlin, JP; Harley, RA; Lunden, MM; Kirchstetter, TW; Kean, AJ; Strawa,

- AW; Stevenson, ED; Kendall, GR. (2008) Long-term changes in emissions of nitrogen oxides and particulate matter from on-road gasoline and diesel vehicles. *Atmos. Environ.*, 42, 220-232.
31. Kirchstetter, T.W.; Novakov, T. (2007) Controlled generation of black carbon particles from a diffusion flame and applications in evaluating black carbon measurement methods. *Atmos. Environ.*, 41, 1874-1888, doi:10.1016/j.atmosenv.2006.10.067.
30. Kirchstetter, TW. (2007) Evaluating past and improving present and future measurements of black carbon particles in the atmosphere. California Energy Commission, PIER Energy-Related Environmental Research. Final report CEC-500-2007-042.
29. Jimenez, J; Claiborn, C; Larson, T; Gould, T; Kirchstetter, TW; Gundel, L (2007) Loading effect correction for real-time aethalometer measurements of fresh diesel soot, *J. Air Waste Manage.*, 57, 868-873.
28. Hering, SV; Lunden, MM; Thatcher, TL; Kirchstetter, TW; Brown, NJ (2007) Using regional data and building leakage to assess indoor concentrations of particles of outdoor origin. *Aerosol Sci. Technol.*, 41, 639-654.
27. Harley, RA; Hooper, DS; Kean, AJ; Kirchstetter, TW; et al. (2006) Effects of reformulated gasoline and motor vehicle fleet turnover on emissions and ambient concentrations of benzene, *Environ. Sci. Technol.*, 40, 5084-5088, doi:10.1021/es0604820.
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5. Kirchstetter, T.W.; Singer, B.C.; Harley, R.A.; Kendall, G.R.; Hesson, J.M. (1999) Impact of California reformulated gasoline on motor vehicle emissions: 2. Volatile organic compound speciation and reactivity. *Environ. Sci. Technol.*, 33, 329-336.
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3. Miguel, A.H.; Kirchstetter, T.W.; Harley, R.A.; Hering, S.V. (1998) On-road emissions of particulate polycyclic aromatic hydrocarbons and black carbon from gasoline and diesel vehicles. *Environ. Sci. Technol.*, 32, 450-455.
2. Kirchstetter, T.W.; Harley, R.A.; Littlejohn, D. (1996) Measurement of nitrous acid in motor vehicle exhaust. *Environ. Sci. Technol.*, 30, 2843-2849.
1. Kirchstetter, T.W.; Singer, B.C.; Harley, R.A.; Kendall, G.R.; Chan, W. (1996) Impact of oxygenated gasoline use on California light-duty vehicle emissions. *Environ. Sci. Technol.*, 30, 661-670.